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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,259	12/14/2000	Xiaoqiang Luo	YOR20000737US1 (590.033)	1915

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EXAMINER	
SHORTLEDGE, THOMAS E	

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/737,259	LUO ET AL.	
	Examiner	Art Unit	
	Thomas E Shortledge	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/08/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments in the Amendment filed Monday, November 8, 2004 have been fully considered but they are not persuasive.

2. In response to applicants argument (Amendment ., page 8) that Miller et al. teach only adapting the algorithm (Early) used to search the parsing model and that there is no teachings or suggestions in Miller et al. of adapting (or modifying) the statistical parsing model itself. The examiner argues that Miller et al. teaches using a parsing model that contains an adaptation of the Early parsing algorithm. It is inherent that if the Early parsing algorithm is adapted, the parsing model containing that algorithm will also be adapted.

3. In response to applicant's argument (Amendment :, page 8) that there is no suggestion to combine the references (Miller et al. and Kita et al.), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21

USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation is taught by Kita et al, where a goal of Kita et al. is to be able to further improve recognition accuracy (page 703, left column).

4. In response to applicant's argument (Amendment , page 8) that the references fail to show certain features of applicant's invention (i.e., that a Markov Transform has nothing to do with a random process), it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, the Markov Transform recited within the claims is exemplified but not defined within the specification; therefore, the examiner is giving the term its broadest reasonable interpretation.

5. In response to applicant's argument (Amendment , page 9) that there is no suggestion to combine the references (Miller et al. and Coughlin), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation is taught by Coughlin,

where it is stated a goal of the invention is to create a parser with improved accuracy (col. 5, lines 4-5).

6. In response to the applicant's argument (Amendments, page 9) that the dependent claims 2-12 and 14-24 are now allowable, the examiner states that in light of the above responses to the independent claims 1 and 13, these claims are not allowable, and the examiner reinforces the rejections made in the first office action, repeated below.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. as in claims 1 and 13, and in view of Kita et al. (HMM Continuous Speech Recognition Using Predictive LR Parsing).

As to claim 2 and 14 Miller et al. does not teach the mathematical transform employed by said adapter comprises a Markov Transform.

However Kita et al. do teach updating probabilities using a Hidden Markov Model phone probability calculation process (page 704, right column).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the parsing system of Miller et al. with the Markov calculations as taught by Kita et al. to further improve recognition accuracy as taught by Kita et al. (page 703, left column).

As to claims 3 and 15 Miller et al. does teach the statistical model is assigned, prior to adaptation, a probability mass function (the probability mass for each discourse-dependent meaning is focused on a single parse tree, page 56, right column).

As to claims 4 and 16, Miller et al. does not teach the probability mass function is written as a row vector.

However, Kita et al. do teach a vector probability array (page 704, right column), equivalent to a row vector.

Therefore it would have been obvious to one of ordinary skill of the art at the time of the invention to combine the parsing system of Miller et al. with the probability function usage of Kita et al. to conveniently arrange the probability data for updating by Kita's Markov transform.

As to claims 5 and 17, Miller et al. and Kita et al. do not teach of right-multiplying the row vector by a Markov matrix.

Official notice is taken that both the concept and advantages for updating a Markov model by right multiplying a row vector by a Markov matrix (or left multiplying a column vector by a transpose of the Markov matrix) are well known and expected in the art. It would have been obvious to update the Markov model included in Miller et al. and Kita et al. to conveniently update the probabilities to improve the recognition accuracy and efficiency as taught by Kita et al. (page 703, left column).

As to claims 6 and 18, Miller at al. do not teach that the adapter is configured for choosing a Markov matrix such that the log probability of given material is maximized.

However, Kita et al. do teach of finding the highest and best probability (page 704, right column).

Therefore it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the parsing system of Miller et al. with the highest probability of Kita et al. to improve recognition accuracy as taught by Kita et al. (page 703, left column).

As to claims 7, 9 and 19, 21, Miller et al. do not explicitly teach unsupervised or supervised adaptation.

However, Kita et al. teach the use of Viterbi algorithm to update the probabilities, it can be run in either supervised or unsupervised modes

Therefore it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the parsing system of Miller et al. with the unsupervised

or supervised updating of Kita et al. to improve recognition accuracy as taught by Kita et al. (page 703, left column).

As to claims 8 and 20, Miller et al. do teach the employing of decoded parses of test material, (the system was trained using data from the Air Travel Information domain, page 55, right column)

As to claim 10 and 22, Miller et al. teach the adapter is configured to employ adaptation material, (training the model by estimating the transition probabilities, col. 1, page 58).

As to claim 11 and 23 Miller et al. teach that the statistical model decodes linguistic input (the parser is part of a natural language interface system (page 55, left column, which inherently accepts a linguistic input).

As to claims 12 and 24 Miller et al. teach that the statistical model decodes speech input and speech recognition (a natural language interface system that is fully integrated, resulting in an end-to-end system that maps input utterances into meaning representation frames).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas E Shortledge whose telephone number is (703)605-1199. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703)306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TS
1/21/05

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PRIMARY EXAMINER